Appl. No. 10/522,464
Response to Office Action of November 24, 2009

PATENT
Docket No.: FR020079US
Customer No. 24737

REMARKS

By this amendment, claims 1 and 6 have been amended. Claims 1-7 remain in the application. Support for the amendments can be found the specification and drawings. No new matter has been added. This application has been carefully considered in connection with the Examiner's Action. Reconsideration and allowance of the application, as amended, is respectfully requested.

Rejection under 35 U.S.C. §103

Claim 1 recites a method of encoding a digital video sequence for use within a video communication system, said digital video sequence comprising some sets of images including a disparity map comprising an image in which a disparity value is assigned to every pixel, said disparity map being used to reconstruct one image of a set of images from a reference image of said set of images, characterized in that the method comprises the steps of:

encoding with a first encoding means a type of the disparity map to be used for the reconstruction of an image, wherein the type (i) represents the way that disparity values of the disparity map are to be translated by a decoder within the video communication system, and (ii) explains to the decoder how to use exactly the disparity map on the reference image to reconstruct one image of the set of images from another one; and

encoding with a second encoding means the disparity map.

Support for the amendments to claim 1 (as well as for claim 6) can be found in the specification at least on page 3, lines 13-16; page 4, lines 28-31; page 5, lines 17-18; page 6, lines 19-23 and 32-34; and Figures 1-2.

As presented herein, Claim 1 has been amended to more clearly articulate the novel and non-obvious distinct features thereof. For instance, as disclosed in the original specification on page 6, lines 20-23, an advantage of the present invention is to

"tell the decoder, and therefore the receiver, how to use **exactly** the disparity representation on an image to reconstruct an image of a set of texture images from one another." In addition, on page 6, lines 28-32, another advantage of the present invention is that "it *improves* the *reconstruction* of a *point of view* on the basis of a reference point of view and the associated disparity map. Indeed, with the flag C1 and, as the case may be, with the parameters, the *reconstruction* of the reconstructed point of view is *more precise* and thus, the reconstructed point of view better fits the original point of view. The usage of the flag(s) *to* **explain** how the *disparity map* shall be *interpreted* allows *consistent* 3D *effects* to the viewer, *whatever* translation function was originally used to encode the disparity values (emphasis added)."

Claims 1-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chen (US 6,043,838, hereinafter "**Chen**") in view of Haskell et al (US 6,055,012, hereinafter "**Haskell**"). With respect to claim 1, as amended herein, Applicant respectfully traverses this rejection on the grounds that these references are defective in establishing a prima facie case of obviousness.

> As the PTO recognizes in MPEP § 2142:
> ... *The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...*

It is submitted that, in the present case, the examiner has not factually supported a prima facie case of obviousness for the following reasons.

1.   Even When Combined, the References Do Not Teach the Claimed Subject Matter

The **Chen** and **Haskell** references cannot be applied to reject claim 1 under 35 U.S.C. § 103 which provides that:

> A patent may not be obtained ... if the differences between the subject matter sought
> to be patented and the prior art are such that the _subject_ _matter_ _as_ _a_ _whole_ would have
> been obvious at the time the invention was made to a person having ordinary skill in the
> art to which the subject matter pertains ... (Emphasis added)

Thus, when evaluating a claim for determining obviousness, <u>all limitations of the</u> <u>claim must be evaluated</u>. However, since neither **Chen** nor **Haskell** teaches "_encoding_ ... a _type_ of the disparity map ... wherein the _type_ _(i) represents_ the _way_ that _disparity_ _values_ ... are _to be_ _translated_ by a decoder within the video communication system, <u>and</u> _(ii) explains_ to the decoder _how_ _to use_ _exactly_ the disparity map on the reference image to reconstruct one image of the set of images from another one ..." [emphasis added] as is now claimed in claim 1, it is impossible to render the subject matter of claim 1 as a whole obvious, and the explicit terms of the statute cannot be met.

In contrast, **Chen** teaches a method and system for view offset estimation for stereoscopic video coding. In the method of **Chen**, "an enhancement layer image is disparity predicted using lower layer images ... by shifting the lower layer image to the right to compensate for inter-ocular camera lens separation." In addition, at "a decoder, the _offset value x_ is recovered ... and used to _reconstruct_ the _reference frame_." (See Chen Abstract). Accordingly, the system of **Chen** provides "for the transmission of an _offset value_ for use by a decoder in _reconstructing a reference frame_" (emphasis added, see Chen at Col. 3, lines 50-52). However, **Chen** does not teach or suggest "_encoding_ ... a _type_ of the disparity map ... wherein the _type_ _(i) represents_ the _way_ that _disparity_ _values_ ... are _to be_ _translated_ by a decoder within the video communication system, <u>and</u> _(ii) explains_ to the decoder _how_ _to use_ _exactly_ the disparity map _on_ the _reference image_ to reconstruct one image of the set of images from another one" as is specifically recited in claim 1 of the present application.

In further contrast, **Haskell** teaches a system and method for transmitting and displaying multiple different views of a scene via three or more simultaneous scene signals provided to a spatial multiplexer (see for example the Haskell Abstract). Fig. 15 of **Haskell** shows a block diagram of multi-view coding. As discussed at least in Col. 10,

lines 62-67, Col. 11, lines 1-58, and Fig. 15 of Haskell, the motion compensated and disparity compensated encoder for super-view 2 (ref. 1518 of Fig. 15, Haskell) includes a disparity estimator (1507) and a disparity compensator (1512). At the super-view 2 decoder (1542), the decoded super-view 1 output (1534) is available to disparity compensator (1537) which uses the disparity vectors 1536 to generate disparity compensated prediction signal on line (1538) for use by super-view 2 decoder (1540). In addition, the disparity compensator (1537) is *identical to* the disparity compensator (1512) at the encoder (see Haskell at Col. 11, lines 38-39). Furthermore, the super-view 2 encoder (1518) also includes information regarding multiplexing of the views (124) as part of the super-view 2 bitstream. The super-view 2 decoder (1540) decodes and outputs information regarding multiplexing of views on line (137) (see Haskell at Col. 11, lines 53-57). However, **Haskell** does not teach or suggest "*encoding* … a *type* of the disparity map … wherein the *type* (i) represents the *way* that *disparity values* … are *to be translated* by a decoder within the video communication system, and (ii) explains to the decoder *how to use exactly* the disparity map *on the reference image* to reconstruct one image of the set of images from another one" as is specifically recited in claim 1 of the present application.

Thus, for this reason, the examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103 should be withdrawn.

2.   The Combination of References is Improper

Assuming, arguendo, that the above argument for non-obviousness does not apply (which is clearly not the case based on the above), there is still another compelling reason why the **Chen** and **Haskell** references cannot be applied to reject claim 1 under 35 U.S.C. §103.

§ 2142 of the MPEP also provides:

>   ...*the examiner must step backward in time and into the shoes worn by the*

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> hypothetical 'person of ordinary skill in the art' when the invention was unknown and just before it was made.....The examiner must put aside knowledge of the applicant's disclosure, refrain from using hindsight, and consider the subject matter claimed 'as a whole'.

Here, neither **Chen** nor **Haskell** teaches, or even suggests, the desirability of the combination since none teaches the "_encoding_ … a _type_ of the disparity map … wherein the _type_ *(i) represents* the _way_ that *disparity values …* are _to be translated_ by a decoder within the video communication system, _and_ *(ii) explains* to the decoder _how to use exactly_ the disparity map *on the reference image* to reconstruct one image of the set of images from another one" as specified above and as claimed in claim 1.

Thus, it is clear that neither reference provides any incentive or motivation supporting the desirability of the combination. Therefore, there is simply no basis in the art for combining the references to support a 35 U.S.C. §103 rejection.

In this context, the MPEP further provides at § 2143.01:

> The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

In the above context, the courts have repeatedly held that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. In the present case it is clear that the combination as suggested by the office action arises solely from hindsight based on the invention without any showing, suggestion, incentive or motivation in either reference for the combination as applied to claim 1. Therefore, for this reason, the examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection under 35 U.S.C. §103 should be withdrawn.

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Accordingly, claim 1 is allowable and an early formal notice thereof is requested. Claims 2-5 depend from and further limit independent claim 1 and therefore are allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome. Withdrawal of the rejection is requested.

With respect to claim 6, the same has been amended herein in a similar manner as with respect to the amendment to claim 1. Claim 6 is believed allowable over the **Chen** and **Haskell** references for the reasons stated herein above with respect to overcoming the rejection of claim 1. Accordingly, claim 6 is allowable and an early formal notice thereof is requested. The 35 U.S.C. §103(a) rejection thereof has now been overcome.

Claim 7 depends from and further limits independent claim 6 and therefore is allowable as well. The 35 U.S.C. §103(a) rejection thereof has now been overcome.

Conclusion

Except as indicated herein, the claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce subject matter deleted herein at a later time during the prosecution of this application or a continuation application.

It is clear from all of the foregoing that independent claims 1 and 6 are in condition for allowance. Claims 2-5 depend from and further limit independent claim 1 and therefore are allowable as well. Claim 7 depends from and further limits independent claim 6 and therefore is allowable as well.

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The amendments herein are fully supported by the original specification and drawings; therefore, no new matter is introduced. An early formal notice of allowance of claims 1-7 is requested.

Respectfully submitted,

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